BENNETT Marine

"Superior by Design"

Bennett Warranty

Bennett Trim Tab systems in the United States carry a **five (5) year** limited warranty against manufacturing and defects. Bennett electronics (Tab Position Indicator, Auto Tab Control, Electronic Indicator Control, and Auto Tab Retractor) carry a **three (3) year** limited warranty against manufacturing and workmanship defects.

PLEASE NOTE: Damage to the trim tabs due to electrolysis is not covered by warranty. No labor costs of replacement, haulout, or miscellaneous charges are covered. Contacting Bennett Marine first may save considerable time, trouble, and expense.

The foregoing is in lieu of any and all other warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose. There are no other warranties which extend beyond that set forth above.

Warranty Return Procedure: Remove faulty part and return to Bennett Marine. No pre-authorization is required. Parts covered under warranty will be repaired or replaced without charge (please insert a note in the box with your instructions and return address). If necessary, a replacement part can be sent in advance of the faulty part's return.

IMPORTANT: IF HYDRAULIC POWER UNIT IS BEING RETURNED, PLEASE DRAIN FLUID BEFORE SHIPPING.

Customers Outside the USA: Please contact your local Bennett Marine distributor for warranty and return procedures in your respective country.

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT BENNETT MARINE CLIENT SERVICES.

BENNETT Marine

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Made in the USA. Components of Bennett Trim Tabs are made under one or more of the following US patents: 3,062,167 / 3,111,103 / 3,399,643 / 3,628,486 / 3,628,487 / 3,695,204.

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BENNETT Trim Tabs

Owners Manual

(keep with boat owner's information)

The Most Reliable Trim Tab System in the World.

Superior by Design

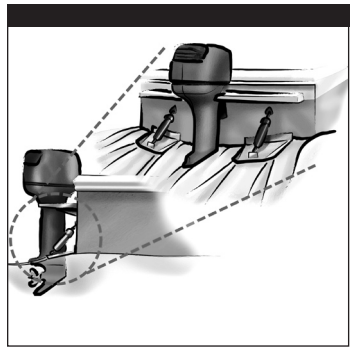
Congratulations, you are the owner of the finest trim tabs available. Bennett Trim Tabs provide you with control never thought possible. Properly sized trim tabs get you up on plane quickly and correct listing at nearly any speed, regardless of weight distribution or sea conditions. These benefits add up to less drag on the hull, reduced engine stress, increased speed and decreased fuel consumption. If you have any questions not answered in this manual please feel free to contact us!

www.BennettTrimTabs.com

Visit the Bennett Marine Web Site! It has a wealth of advice and information about owning & operating your trim tabs.

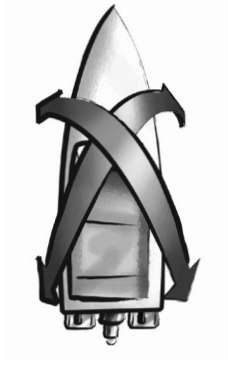
Installation Video – How Trim Tabs Work & How to Use Them – Bennett Trim Tab Accessories – Parts and Pricing – Trouble Shooting Guide – Rapid e-mail Response to Questions

How Trim Tabs Work



Bennett Trim Tabs are attached to the bottom edge of the transom. When the helm control is pressed, the trim tabs move into position. Water-force on the trim tab surface creates upward pressure, raising the stern and lowering the bow. Properly sized Trim Tabs improve the performance of your boat in a much wider range of weight, weather and water conditions.

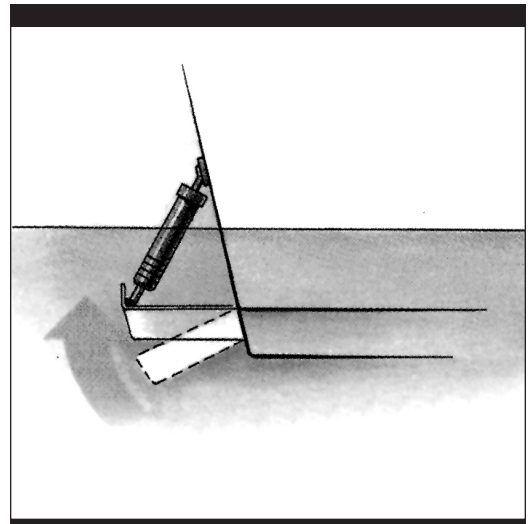
Bennett Trim Tabs operate the reverse of what you might think. The port trim tab lowers the starboard bow. Conversely, the starboard trim tab lowers the port bow. The control is wired so that all you have to do is press the control in the direction you want the bow to move. Don't worry about which trim tab is moving. The proper use of Bennett Trim Tabs becomes second nature after a short time.



Other Bennett Products (continued)

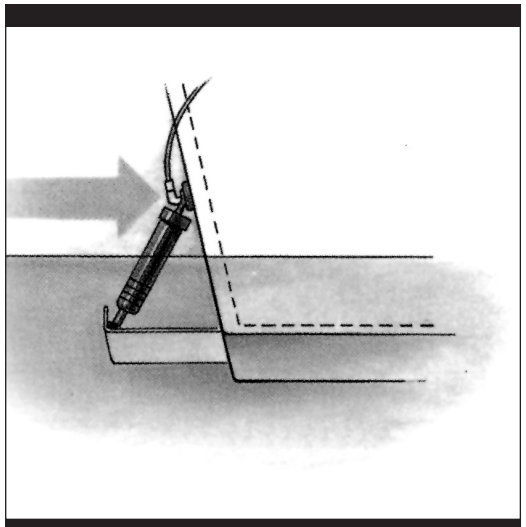
Auto Tab Retractor (ATR):

The **ATR** automatically retracts trim tabs when boat's ignition key is turned to the "off" position. Retraction prevents trim tab damage for trailered or dry stored boats. Available in 12, 24, and 32 volts.



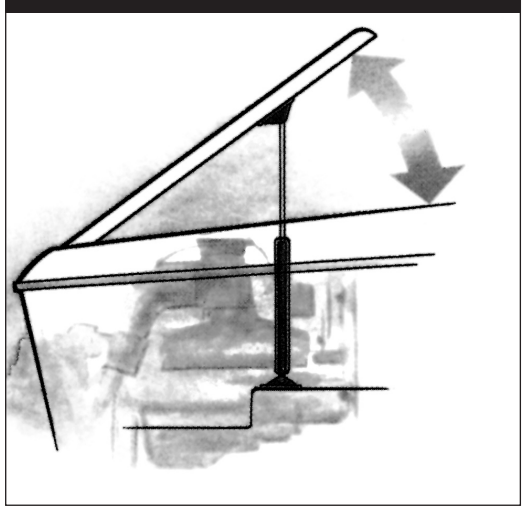
Sport Tabs: **Sport Tab**s are gloss black, heavy duty stainless steel trim tabs designed for faster, higher performance boats.

Other **Bennett Products** (continued)



External Line Connection Actuator :

The **External Line Connection Actuator** is used in cases of total inaccessibility inside the transom. Unlike the standard actuator, the external line hydraulics enter the transom by means of external tubing above the waterline. Recommended only when necessary. No additional charge.



Hatch Lifter:

The **Hatch Lifter** system raises hatches at the press of a switch—up to 250 lbs. Operation is smooth and quiet. For space and cost efficiency, the system shares the same Hydraulic Power Unit as the trim tabs. The **Hatch Lifter** cylinder features a stainless steel shaft with an anodized aluminum housing. Various kits are available with cylinders in 12", 18" and 24" strokes. Also available independent of trim tabs.

How to Use Your Trim Tabs

GETTING AND STAYING TRIMMED

Most boats "break over" (get on plane) at a particular speed. This speed is determined by weight distribution, water conditions, etc. Bennett Trim Tabs enable your boat to plane at speeds lower than natural planing speed. By pressing the control to the "Bow Down" position, your trim tabs move down. This will raise your stern and lower your bow, getting you up on plane faster and increasing your speed.

YOUR BOAT'S OPTIMUM ATTITUDE

A good way to find your boat's optimum attitude is to conduct this test. Get out and run it lightly loaded, at full speed on flat water. Notice the bow in relation to the horizon. This should be your boat's best running attitude. You can use your trim tabs to recreate this "perfect attitude" regardless of weight distribution, speed or water conditions.

GETTING USED TO THE "FEEL" OF YOUR TABS

When learning to use your tabs, begin by pressing the helm control in half second bursts for gradual trimming. A momentary delay occurs from the time you press the control to the time the boat reacts. This is normal, and varies with boat speed. Be careful not to over-trim your boat. An over-trimmed boat will "plow" or "bow-steer". If you over-trim the boat, simply press "Bow Up" and the bow of the boat will rise.

TRIMMING FROM A BRIDGE OR TOWER

When steering from a bridge or tower, a good trimming method is to watch the bow spray, stern wake, or the rooster tail. An untrimmed boat will produce more spray aft of the bow and it will produce a larger wake. When trimmed, the bow spray is farther forward, the wake is reduced, and the rooster tail is smaller and farther behind the boat. You'll also notice that the engine RPM will increase when the boat is properly trimmed.

How to Use Your Trim Tabs (continued)

RUNNING IN ROUGH WATER

When running in a chop or heavier seas, press "Bow Down". This will bring the "V" of the hull in contact with the waves rather than having the waves pound the hull and your passengers. In a following sea or when running an inlet, the trim tabs should be fully retracted for maximum rudder response.

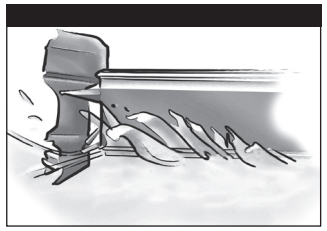
CORRECTING FOR A LIST

Bennett Trim Tabs are operated individually so that you can correct for listing. Your control is designed so that you can use it "intuitively". Do not think about what the trim tabs are doing, just concentrate on the bow. If the port bow is high, push the port-side "Bow Down" direction. If the starboard bow is high, push the starboard side "Bow Down" direction until the boat is level.

TRIM TABS WITH POWER TRIM – GETTING OPTIMUM SPEED AND POWER

Using your trim tabs in conjunction with your power trim will give you increased speed and power.

1. Adjust the trim tabs to achieve a planing attitude.
2. Use the power trim to position the prop path parallel to the water flow.
3. If necessary, re-adjust the trim tabs to "fine tune" your tabs. In other words, use your trim tabs to trim the boat and your power trim to trim your prop.



CORRECTING FOR PORPOISING

Porpoising is a condition more common in faster, performance boats. As speed increases, the bow repeatedly rises out of the water until gravity overcomes lift and the bow bounces down. Press "Bow Down" in half second bursts. As the trim tabs deflect, the porpoising subsides and your speed should remain the same or increase. Only a slight amount of trim tab deflection should be necessary.

SAFETY PRECAUTIONS

- Do not overtrim, particularly at high speeds as the bow will dig in and wave action may cause the boat to veer.
- While underway, do not move one trim tab significantly farther down than the other as undesirable listing could occur.
- Use your trim tab helm control with caution.
- For best maneuverability, trim tabs should be fully retracted in a following sea, or when running an inlet.
- Improper use of trim tabs can cause an accident or injury.

Bennett Trim Tabs have a significant effect on the operation and versatility of your boat. No one knows your boat better than you, the best learning method is to spend time getting familiar with your boat's reaction to the trim tabs. As your experience with Bennett Trim Tabs increases, so will your enjoyment. Always operate your boat with safety first in mind.

Other Bennett Products

Tab Position Indicator (TPI™):

The **Tab Position Indicator** is attractive, compact and easy to install. Compatible with all Bennett Trim Tab systems, the **TPI** is as durable as it is precise. All sensors and wiring are fully enclosed within the trim tab system and protected from the marine environment. It is easily installed with nothing more than a drill and a screw driver.

Auto Tab Control (ATC):

Like Cruise Control for Your Boat! Your boat will run most efficiently when it is properly trimmed. With a Bennet **Auto Tab Control**, you just turn it on and it does the rest. It constantly monitors your boat's position and uses your trim tabs to maintain a perfect cruising attitude.

Electronic Indicator Control:

Three in one! The popular Bennett rocker switch now has a built in **Trim Tab Indicator** and **Auto Tab Retractor**. Like the **TPI**, it is waterproof, highly accurate and features variable intensity LEDs for night or day. With the auto tab retraction feature, just turn off your ignition switch and your tabs automatically retract.

System Information (continued)

MAINTENANCE

- Periodically, check fluid level in HPU. With trim tabs completely retracted, fluid level should be about 2" from bottom of reservoir (approximately 22 ounces). To refill, remove lexan cover and filler plug located at the front left hand corner of the reservoir. FILL WITH ANY TYPE AUTOMATIC TRANSMISSION FLUID (ATF) ONLY. Brands or types of ATF can be mixed. Running HPU with an excess or lack of fluid will not cause damage.
- Periodically, check for clean electrical connections on back of control, HPU ground wire, and quick-disconnect plug.
- Cold temperatures do not affect the trim tab system. No winterization is necessary.
- (SALTWATER ONLY) To deter electrolysis, a zinc anode should be attached to the top of each trim tab. Zinc must make direct contact with stainless steel. Do not paint zinc. Do not ground trim tabs to other underwater appendages.
- Paint trim tabs to discourage marine growth.
  1. Clean surface of all grease, oil, dirt.
  2. Apply two coats of epoxy metal primer.
  3. Apply two coats of anti-fouling paint.
  Actuator, including the piston, may be painted.
- Unpainted trim tabs may acquire an orange discoloration. THIS OXIDATION OF SURFACE CARBON MOLECULES IS NORMAL. The integrity of the stainless steel is not affected. Orange coating can be cleaned off, but may eventually return. **Note:** This discoloration should not be confused with the pitting and corrosion of electrolysis.

SAFETY INFORMATION

- Take immediate action to correct any malfunction or failure of your trim tabs.
- Occasionally, check for loose or corroded wiring connections.
- Stepping on the trim tab may cause damage to the unit, or injury.
- Make sure the HPU is mounted in a dry location to avoid drenching and consequent failure.
- Leaving the actuator extended when boat is not in use will not cause seal damage.
- Occasionally, inspect HPU fluid level.
- REFER TO SAFETY PRECAUTIONS ON PAGE 4.

System Specifications

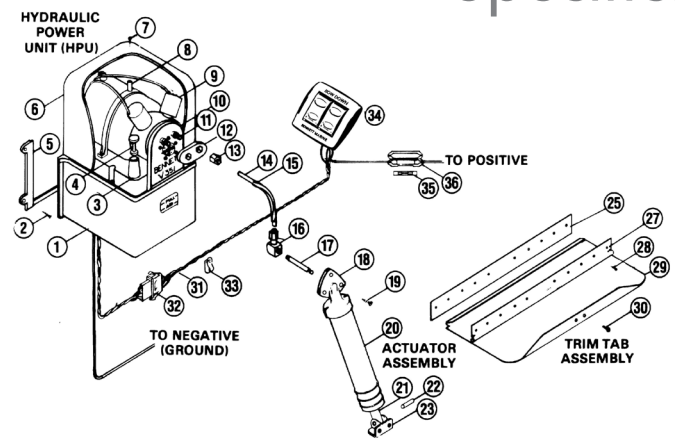


Diagram #	Description	Part #
1	Fluid Reservoir	VP1139
2	#10 x 1" Screw	H1180
3	Filler Stack	——
4	Filler Plug	VP1140
5	Mounting Bracket for HPU	H1179
6	Lexan Cover	VP1138
7	Type 25 Thread Cutting Screw	VP1154
8	Motor Strap	VP1142
9	Solenoid Valve	VP1135-R (red)
		VP1135-G (green)
10	Faceplate for HPU	VP1144
11	1/8 Pipe to 1/4" Tube Connector	VP1146
12	Hex Retainer	VP1141
13	Nut with Ferrule	T1127
14	Hydraulic Tubing (20' unless otherwise specified)	T112520
15	Tube Bending Clip	H1173
16	Female Elbow	H1172
17	Pipe Nipple (3" unless otherwise specified)	H11713
18	Upper Hinge	A1103
19	#14 x 1-1/2" Screw	H1174
20	Cylinder Body	A1105
21	Piston with O-Ring	A1109
22	Lower Hinge Pin	A1115
23	Lower Hinge	A1113
25	Backing Plate	varies with size
27	Hinge Plate	varies with size
28	#10 x 1-1/4" Screw	EH1071
29	Trim Tab Only	varies with size
30	1/4 - 20 x 3/4" Machine Screw	H1175
31	Wire Harness (22' unless otherwise specified)	WH1000
32	Quick-Disconnect Plug	VP1143
33	Nylon Hanger	H1177
34	Euro-Style Rocker Switch Control	ES2000
35	20 Amp Fuse (12 volt system)	H1176
36	Fuse Holder	H117

System Specifications (continued)

SYSTEM COMPONENT SPECIFICATIONS

Trim Tabs:	Stainless steel
Actuators:	Upper hinge material (Part #A1103) made of flexible nylon. Remainder of actuator made of high impact fiberglass-filled nylon.
Hydraulic Power Unit (HPU):	HPU draws approximately 18 amps (broken-in) and operates on 12 volts DC (except 24 & 32 volt HPU's). Approximately 22 ounces of ANY TYPE AUTOMATIC TRANSMISSION FLUID (ATF) is required to fill reservoir to proper level for single actuator installations. With trim tabs fully retracted, proper fluid level is about 2" from bottom of reservoir. The HPU forces both trim tabs full-up to full-down in 9-10 seconds, individually in 4-5 seconds. (Trim tab travel on dual actuator systems takes twice as long).
Helm Control:	Controls on 12 volt systems use 20 amp in-line fuse (24V & 32V use proportionally smaller).
Hydraulic Tubing:	Tubing has 1/4" outside diameter and 1800 lb. maximum pressure.
Wire Harness:	Wire colors and their functions:

Red	Port valve
Green	Starboard valve
Blue	Motor forward (pump pressure)
Yellow	Motor reverse (pump retract)
Black on HPU	Ground
Orange on helm control	Positive

System Information

Bennett Trim Tabs are built to rigid quality standards. However, the marine environment is harsh. So, in the unlikely event a malfunction occurs, here is some helpful information:

1. If trim tabs do nothing . . . no movement . . . no sound from HPU:
- Inspect for blown 20 amp in-line fuse in helm control's orange wire.
- Inspect for disconnected or corroded connections on HPU ground wire, orange positive wire from helm control, and quick-disconnect plug.

2. If HPU runs but trim tabs do not move:
- Inspect for disconnected or corroded red and green wire connections at helm control and quick-disconnect plug.
- The following test can be used to help isolate malfunction. Remove wires from helm control and touch together as follows:

Operation	Reaction
Orange (+), blue, red	Port trim tab down
Orange (+), blue, green	Starboard trim tab down
Orange (+), blue, red, green	Both trim tabs down
Orange (+), yellow, red	Port trim tab up
Orange (+), yellow, green	Starboard trim tab up
Orange (+), yellow, red, green	Both trim tabs up

If trim tabs function in each of the above combinations, check helm control. If during this test trim tabs continue to malfunction, inspect HPU.

3. If one trim tab operates and the other one does not:
- Inspect for disconnected or corroded red or green valve wire connections at helm control and quick-disconnect plug. (Red wire operates port trim tab; green wire operates starboard trim tab).
- Reverse hydraulic lines at front of HPU to determine if malfunction is in HPU or actuator / hydraulic connections. If after reversing lines, symptom shifts to other trim tab, malfunction may exist in HPU. If symptom remains on the same side, malfunction may exist with the actuator/hydraulic connections.

4. If trim tabs go down but will not retract:
- Inspect for low voltage of the battery. Check battery for voltage while HPU (or another accessory) is running. If voltage is less than 10 volts, valves may not open.
- Inspect for disconnected or corroded connections on helm control, and quick-disconnect plug.

This general information is not intended to be complete. Please feel free to call Bennett Marine to assist in solving situations not clarified or addressed above. Bennett Marine customer service is available to help Monday through Friday, 8am to 5pm Eastern time. (954) 427-1400.